

REMARKS

The Examiner rejected claims 1-3 under 35 USC 102(b) as being anticipated by U.S. Patent 4,502,716 to Yu. The Examiner also rejected claims 4-6 under 35 USC 103(a) as being unpatentable over Yu in view of U.S. Patent 5,301,989 to Dallman et al.

Applicant submits that the present invention is patentably distinguishable over the cited references. Applicant's invention is a dead locking assembly which includes a locking bolt 10 mounted on one end of a rack 12 which includes a plurality of rack teeth 14. The rack has opposed ends with the bolt mounted adjacent one end thereof. Adjacent the opposed end from the bolt, rack 14 defines a cavity 30 which is bounded by a wall 32 having a surface which faces away from bolt 10. Cavity 30 is further bounded by opposed walls which extend away from the bounding wall 32 toward the opposed end of rack 14. Portions of the rack teeth are formed atop these opposed walls whereby cavity 30 is disposed intermediate said portions of the rack teeth. Rack 14 includes a shoulder 28 disposed at one end of the plurality of teeth on rack 12 between cavity 30 and bolt 10.

Applicant's bolt assembly further includes a pinion including a plurality of teeth extending radially outwardly from a central axis about which the pinion is rotatable. In addition, a pair of arms 24 and 26 extend radially outwardly from pinion gear 16 whereby said arms 24 and 26 extend radially outward further than do the gear teeth 18 of pinion gear 16. Arms 24 and 26 extend radially outwardly in opposed directions from one another and are substantially parallel to one another. Pinion gear 16 rotates so that gear teeth 18 engage the rack teeth in order to move rack 12 and bolt 10 between retracted and extended positions which are respectively associated with unlocked and

locked positions of the assembly. In the embodiment shown, pinion gear 16 rotates approximately 170° between the locked and unlocked positions. In the retracted position, second arm 26 abuts shoulder 28 in order to prevent over travel of the rack in the retracting direction. As pinion gear 16 is rotated in order to extend bolt 10, first arm 24 passes into cavity 30 of rack 12 to allow bolt 10 to extend to a fully extended position. In the fully extended position (Fig. 8), first arm 24 is spaced from wall 32 by a gap which is smaller than the gap between the rack teeth and the pinion gear teeth so that when an external force is applied to bolt 10 to move it toward the retracted position, wall 32 engages first arm 24 to prevent further movement toward the retracted position in order to deadlock the assembly. The rack teeth and the pinion gear teeth are disengaged in this deadlock position.

The Examiner objected to claim 3 regarding lack of antecedent basis on several counts. Claim 3 has been canceled.

The Examiner rejected claims 1-3 under 35 USC 102(b) as being anticipated by U.S. Patent 4,502,716 to Yu.

In establishing a prima facie case of anticipation under 35 USC § 102, the Examiner must find every element of the applicant's claim in a single reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987). Other references may be used only to interpret the allegedly anticipated reference. Studiengesellschaft Kohle, m.b.H. v. Dart Industries, Inc., 726 F.2d 724, 220 USPQ 841 (Fed. Cir. 1984). This idea was similarly upheld in Scripps Clinic & Research Foundation v. Genentech, Inc., 927 F. 2d. 1565, 18 USPQ2d. 1896 (Fed. Cir.

1991), wherein the Court held that, "Invalidity for anticipation requires that all of the elements and limitations of the claims are found within a single prior art reference."

Yu teaches a deadlocking assembly including a deadbolt 7 attached to one end of a rack 4 having a plurality of teeth thereon. Yu teaches also a pinion gear 3 which includes a plurality of teeth thereon and a cam member 305 which is offset laterally from the pinion gear teeth extends radially outwardly and in generally the opposite direction from the gear teeth. The pinion gear 3 is rotated to move the rack 4 between retracted and extended positions via engagement of the rack teeth and pinion gear teeth. Yu also teaches a rocking arm 5 which is pivotally mounted via a pivot pin 212 to rack 4 and biased by a spring 6 into an unlocked position with respect to rack 4. More particularly, rocking arm 5 includes a lug 504 which is disposed in a cavity 406 when the assembly is in a deadlocked position and which is free from said cavity 406 in an unlocked position. Rotation of the pinion gear of Yu alternately engages the gear teeth with the rack teeth and engages the cam 305 with rocking arm 5. When cam 305 is disengaged from rocking arm 5, rocking arm 5 is biased by spring 6 into the unlocked position with lug 504 removed from cavity 406. When rotation of the pinion forces cam 305 to engage rocking arm 5, cam 305 moves arm 5 so that lug 504 is disposed in cavity 406 to put the assembly in the deadlocked position.

Thus, Yu teaches a more complicated system for creating a deadlocking assembly. The Examiner has deemed that cam 305 is a first arm which passes through or into a recess 404 which is essentially a channel extending longitudinally along one side of rack 4. Thus, cam 305 does not directly engage any portion of rack 4 on which the rack teeth are mounted in order to put the assembly in a deadlocked position.

Rather, cam 305 engages rocking arm 5 in order to move it into the locked position with the lug in cavity 406.

Applicant has amended claim 1 to incorporate the intended limitations of claims 2 and 3 with some changes thereto. In particular, amended claim 1 indicates in part that the rack includes a cavity so located to allow for a first arm extending from said pinion gear to pass into the cavity upon rotation of said pinion gear, said first arm effecting said deadlocking arrangement by abutting against a wall which defines a portion of said rack cavity. Thus, part of the requirement of claim 1 as amended is that the first arm abuts against a wall which defines a portion of the rack cavity. By contrast, Yu teaches that the first arm 305 of the pinion gear contacts the rocking arm 5 in order to move rocking arm lug 504 into cavity 406 as previously discussed. Thus, the first arm or cam 305 of Yu does not engage a wall which defines a portion of the rack cavity. Yu fails to teach this element of claim 1 and therefore Applicant submits that claim 1 is allowable as amended.

The Examiner also rejected claims 4-6 under 35 USC 103(a) as being unpatentable over Yu in view of U.S. Patent 5,301,989 to Dallman et al. The Examiner indicates that Yu does not teach a second arm which abuts a shoulder nor that such a second arm is parallel to a first arm. The Examiner indicates that Dallman teaches an arm (large cog on gear) on a gear 56 and engages an opening (large opening on rack 60 shown in Fig. 3) to prevent the gear from over pivoting, which could damage the rack. Applicant respectfully disagrees with the Examiner's reading of Dallman, et al. More particularly, while Applicant agrees that the arm that the Examiner indicated does move into the large opening in rack 60, Applicant's submits that this does not prevent

the gear from over pivoting. To the contrary, it is explicitly stated in the Dallman, et al. patent that the transverse wall 92 stops the ends 94 of fork 62, which is the end of rack 60. (See column 4, lines 37-41 and lines 65-68.) In the second embodiment of Dallman, et al. post 192 serves similar purpose as transverse wall 92 of the first embodiment (i.e. as a stop) to prevent the said over pivoting. (See column 6, lines 5-9.) Thus, Applicant submits that Dallman, et al fails to teach or suggest the limitation of claim 4 and that claim 4 is therefore independently allowable. Applicant has amended claim 4 to depend from claim 1 and submits that claim 4 is also allowable as depending from an allowable claim. In addition, Applicant submits that claim 5 is independently allowable as well. Claim 5 indicates that the first and second arms extended opposite directions and are parallel to one another. As noted, Dallman, et al is not applicable as discussed with regard to claim 4 and as the Examiner stated, Yu does not teach opposed arms or ones that could be parallel. Thus, Applicant submits that claim 4 is allowable as depending from allowable claim and also independently allowable.

Further regarding claim 4 and more importantly, even if the Examiner disagrees with Applicant's reading of Dallman et al., adding a second arm to the pinion gear of Yu would not allow the Yu mechanism to function. More particularly, the first arm or cam 305 of Yu is used to push rocking arm 5 into the locked position as previously discussed. More particularly, adding a second arm similar to arm 305 on the pinion of Yu would simply create another cam which would force rocking arm 5 into a locked position or force rocking arm 5 downwardly without a cavity to receive lug 504 therein. If the second arm extended farther out than the first arm 305 in the radial positions between the pinion gear teeth and arm 305, it would prevent the pinion from rotating to

allow the pinion gear teeth to engage the rack teeth in order to move the rack. With more particular reference to claim 5, if such an arm extended outwardly in opposite direction from cam 305, the rocking arm 5 would move into a locking position at the same time that gear teeth of the pinion engage the rack teeth and thus prevent the movement of the rack between the retracted and extended positions. Thus, addition of a second arm at any location and in particular in the opposed location from the first arm would not allow the Yu mechanism to function. Therefore, Applicant submits that claims 4 and 5 are independently allowable.

Regarding independent claim 6, Applicant has amended said claim to clarify previously inadvertently worded elements thereof in order to accurately describe the invention. As previously discussed, Yu fails to teach or suggest opposing arms extending from the pinion gear and Dallman, et al. fails to teach or suggest the addition thereof. Thus, Applicant submits that claim 6 is allowable for this reason alone. In addition, claim 6 includes language that indicates that the first arm is disposed adjacent a surface bounding a cut out of a rack so that the forcing of the bolt toward the retracted position abuts the surface with the first arm, thereby deadlocking the bolt. As previously discussed, Yu fails to teach or suggest that a surface bounding a cut out or cavity in the rack abuts a first arm of the pinion creating the deadlocking position. Applicant submits that claim 6 is also allowable for this reason.

Applicant has further added new claims 7-22 including new independent claim 12 and submits that said new claims are allowable.

Claim 7 indicates that the first arm extends radially outwardly farther than do the pinion gear teeth, which further defines over Yu.

Claim 8 indicates that the rack is formed as a single member, which also further defines over Yu, which includes a rocking arm and so forth.

Claim 9 indicates that the pinion rotates approximately 170° from an unlocked position to a locked position. By contrast, Yu requires two or three rotations of the pinion in order to move from the locked to the unlocked positions.

Claim 10 depends from claim 6 and indicates that the first and second arms extend radially outwardly farther than do the pinion gear teeth, which as noted above further defines over Yu.

Claim 11 depends from claim 6 and indicates that the first and second arms extend radially outwardly in opposite directions and are substantially parallel to one another. As previously discussed, this further defines over Yu.

New independent claim 12 includes a lock bolt operatively coupled to a rack including a plurality of teeth and a pinion gear with gear teeth for driving the rack between retracted and extended positions wherein a first arm extends radially outwardly from the pinion gear. Claim 12 further includes that the rack has a rack surface which faces away from the bolt so that the first arm may pass adjacent the rack surface upon rotation of the pinion gear and that when the bolt is in the extended position, external movement of the bolt toward the retracted position forces the rack surface against the first arm to deadlock the bolt. As previously discussed, Yu fails to teach or suggest a rack having a rack surface which faces away from the bolt so that the first arm may pass adjacent thereto and that the rack surface would be forced against the first arm to deadlock the bolt when the bolt is moved towards the retracted position. Applicant thus submits that claim 12 is allowable.

Claim 13 further indicates that the rack defines a rack cavity and that the rack surface bounds the rack cavity.

Claim 14 further indicates that the rack includes a pair of opposed walls which extend from the rack surface away from the bolt and which bound the rack cavity therebetween. Applicant submits this further defines over Yu.

Claim 15 indicates that there are portions of the rack teeth on the opposed wall so that the rack cavity is disposed between the portions of the teeth on the opposed walls.

Claim 16 indicates that the bolt is mounted adjacent a first end of the rack and that the rack cavity is disposed adjacent a second opposed end of the rack.

Similarly, claim 17 indicates that the bolt is mounted adjacent the first end of the rack and that the rack surface is disposed adjacent a second opposed end of the rack.

Claim 18 indicates that the first arm extends radially outwardly farther than do the pinion gear teeth, as previously discussed with regard to the previous new claim 7.

Claim 19 indicates a first gap between the rack teeth and the gear teeth is smaller than a gap between the first arm and the rack surface so that the gear teeth are disengaged from the rack teeth when the bolt is moved towards the retracted position from the extended position.

Claim 20 indicates that the pinion gear teeth are disengaged from the rack when external movement of the bolt towards a correct position forces the rack surface against the first arm.

Claim 21 indicates that the rack is formed of a single member.

Claim 22 indicates that the pinion rotates approximately 170° between the unlocked and locked position thereof.

Applicant submits that the limitations of each of the new claims 7-22 define over the prior art and are therefore independently allowable.

In view of the foregoing, the Applicant respectfully requests reconsideration of the claims and most earnestly solicits the issuance of a formal notice of allowability for the claims. Please call the undersigned attorney if any questions remain after this amendment.

Respectfully submitted at Canton, Ohio this 6th day of April, 2005.

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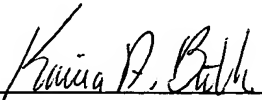
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